New York State Department of Transportation
Yellow Flag NB2228W016

By: Ben Colangelo
Flag Date: March 25, 2022

Superseding Information:

This flag supersedes: YF NB2158W002

Structure Information

BIN: **1065318**
Feature Carried: 278I278IX2M23027
Feature Crossed: 6TH AVENUE
Orientation: 8 - NORTHWEST

Region: 11 - NEW YORK CITY
County: KINGS
Political Unit: City of NEW YORK
Approximate Year Built: 1962

Posted Load Matches Inventory : Yes
Bridge Load Posting (Tons) : Not Posted for Load

Primary Owner: New York State Department of Transportation
Primary Maintenance Responsibility: 12 - State - Subcontracted to another Party
Typical or Main Span Type: 3 - Steel, 02 - Stringer/Multi-Beam or Girder
This Bridge is not a Ramp
Number of Spans: 322

Verbal Notification Information

Person Notified: Heinz Joachim, P.E.
Date: March 25, 2022 10:00:00 AM

Of: NYSDOT Region 11

Signature Information

Signature: Ben Colangelo, P.E. 068498
Date: May 19, 2022

Reviewed By: Robert Kemp
Date: May 19, 2022

Attachments: 6

Flagged Elements

Parent Element	Element	Total Quantity	Unit
	Span Number : 168		
	113 - Steel Stringer	156	ft
	PR831 - Steel Beam End	34	each

Flagged Condition Description

Yellow Flag No. NB2228W016

Location: Span 168 Girder G10 at Pier 167.

Description: The end of Girder G10 in Span 168 at Pier 167 exhibits severe corrosion resulting in an overall shear web area section loss of approximately 52% (previously 61%) and an overall lower portion of the web in the bearing area section loss of approximately 24% (previously 20%). The web of the girder exhibits 6-1/2” long x 1-3/4” wide corrosion hole approximately 6” from the bottom flange (Photos 3 and 4). The remaining thickness measurements (RTM) along with the percent section loss calculations are shown in the attached girder sketch (Refer to sketch for more details). This girder is located above an expansion bearing.

The depth of the girder has been revised to 30.5” (previously 25”) which reduced the shear section loss from 61% to 52%.

This Yellow Flag No. NB2228W016 is superseding Yellow Flag No. NB2158W002.

Notes:
1.The expansion bearing below Girder G10 exhibits moderate corrosion with ¼” deep pitting in the guide plates and rocker bearing. Also, the bearing exhibits pack rust within the rocker bearing itself.

2.The girder has a guide angle connected between the face of the girder and pier at both faces of the girder. The left guide angle exhibits 17-3/4” long x 3” wide corrosion hole starting at the bottom of the connection angle and 2” long x 1” wide corrosion hole between the bottom and middle bolts of the angle. The right guide angle exhibits 7-1/2” long x 2” wide corrosion hole starting at the bottom of the connection angle and 4-1/2” long x 1-3/4” wide corrosion hole between the top and middle bolts of the angle.

3.The adjacent Girder G9 exhibits up to 35% localized section loss at the lower web for 4” high above the bottom flange but the overall web bearing area section loss is approximately 25% and the overall shear web area section loss is approximately 7%.

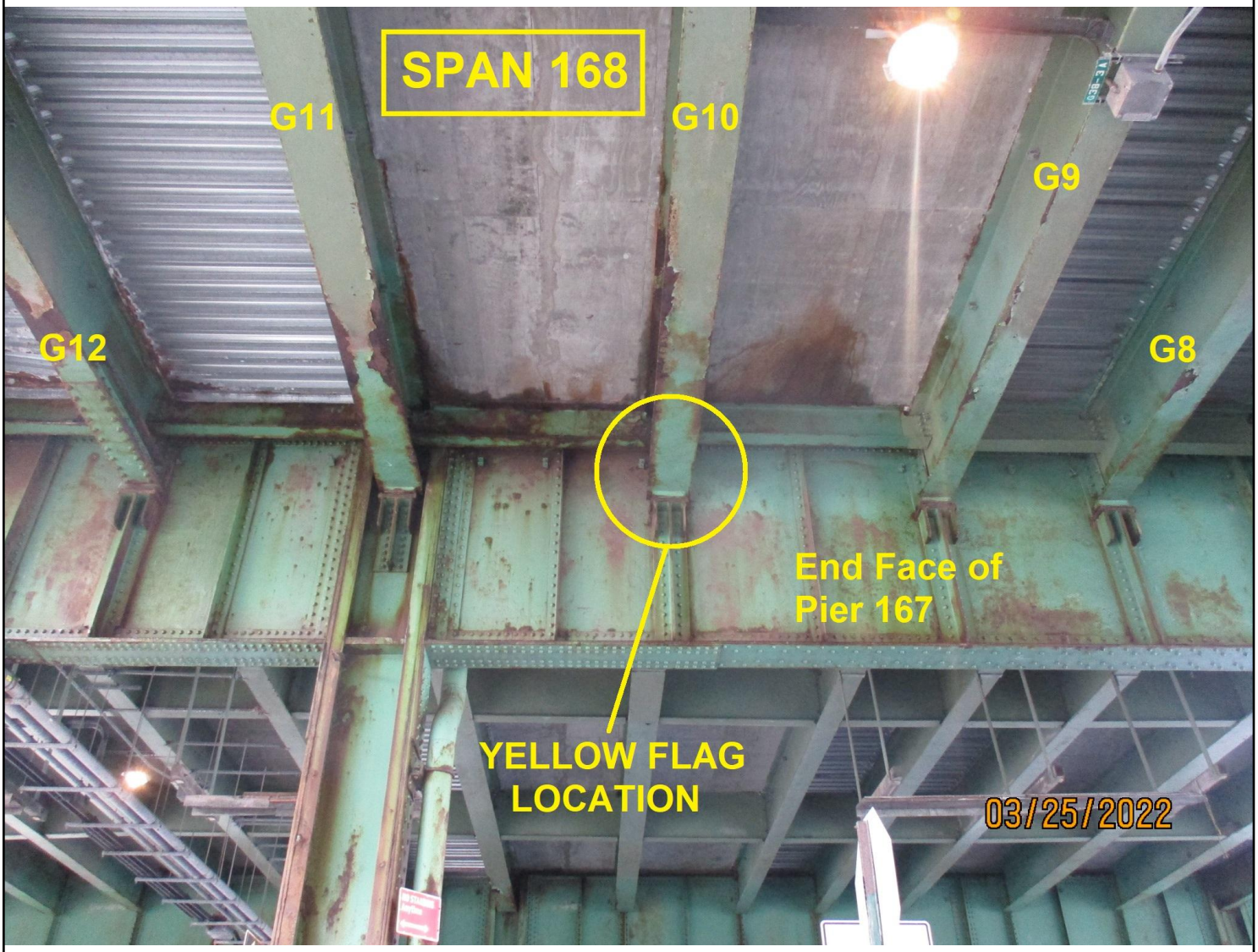
4.The adjacent Girder G11 exhibits an average localized section loss of 47% at the lower web for 10” high above the bottom flange but the overall web bearing area section loss is approximately 35% and the overall shear web area section loss is approximately 12%.

5.The end diaphragms below Bays 9 and 10 exhibit 15%-20% section loss at both flanges and up to 15% at the web.

6.This flagged condition was accessed using a 30ft bucket truck with single lane closure.

Flag Photographs

Photo Number: **1** Photo Filename: **IMG_3390.JPG**

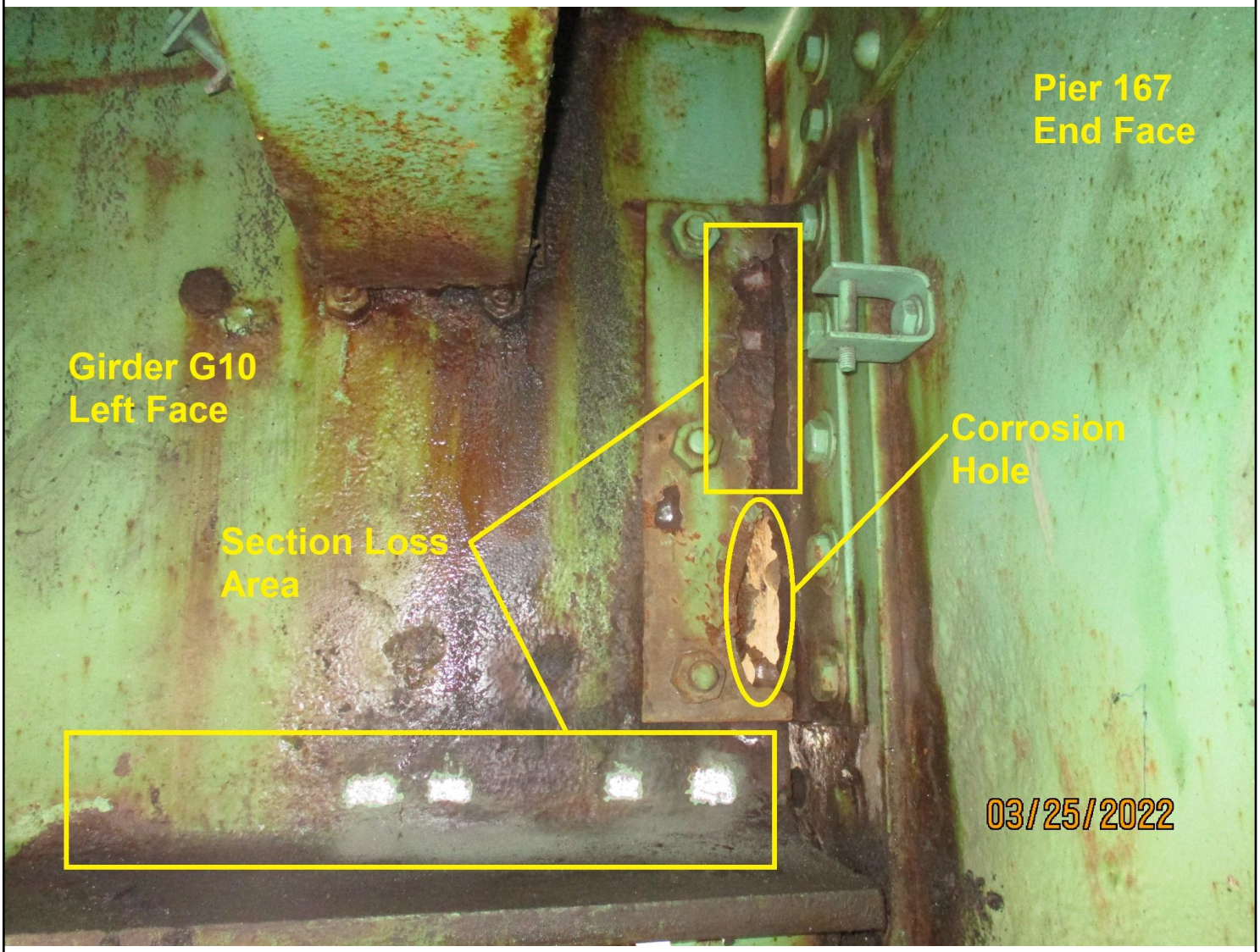


Attachment Description: **General view of the flagged condition at Girder G10 in Span 168 at Pier 167. Looking Begin.**

Photo Number: **2** Photo Filename: **IMG_3381.JPG**

Attachment Description: **Close up general view of the flagged condition at Girder G10 in Span 168 at Pier 167. Looking Begin Left.**

Photo Number: **3** Photo Filename: **IMG_3363.JPG**

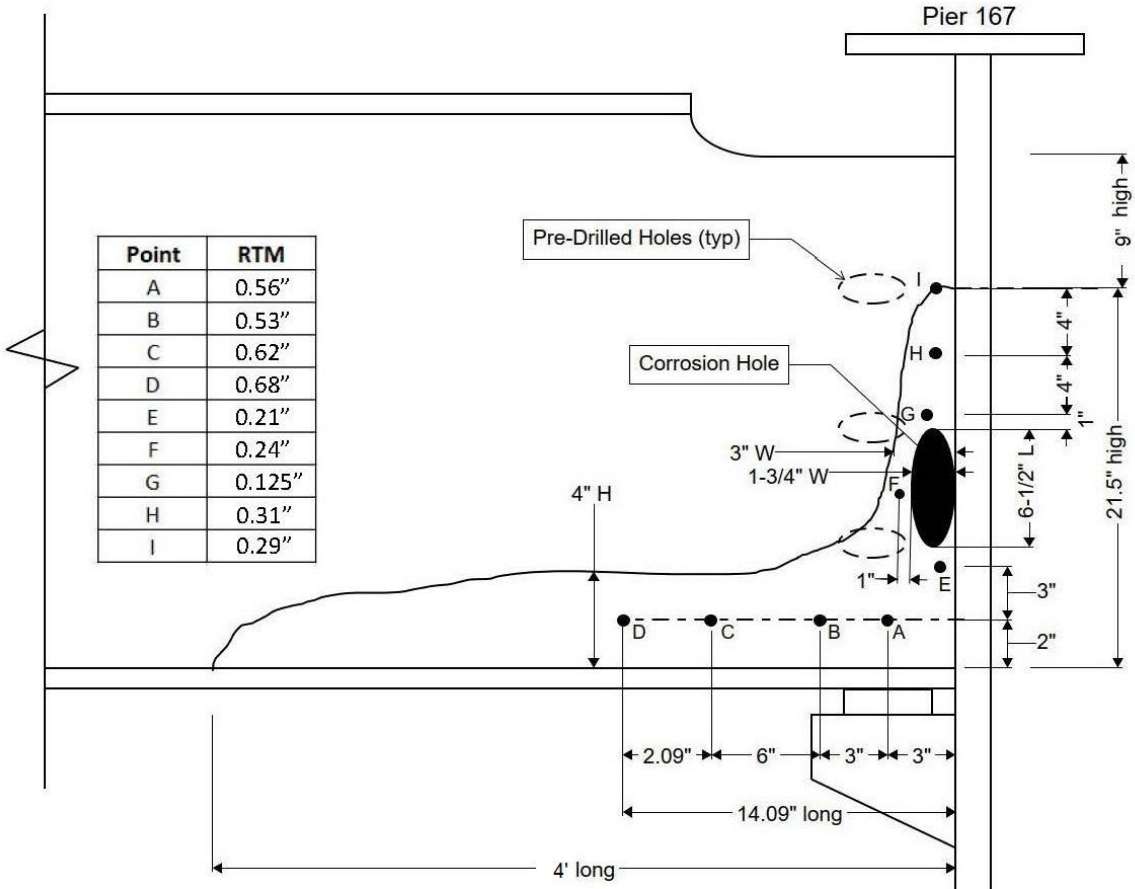


Attachment Description: **The left face of Girder G10 in Span 168 at Pier 167. The girder web exhibits severe section loss with corrosion hole above the bearing area. Looking Right.**

Photo Number: **4** Photo Filename: **IMG_3380.JPG**

Attachment Description: **The right face of Girder G10 in Span 168 at Pier 167. The girder web exhibits severe section loss with corrosion hole above the bearing area. Looking Left.**

Photo Number: **5** Photo Filename: **YFNB22~1.JPG**



Point	RTM
A	0.56"
B	0.53"
C	0.62"
D	0.68"
E	0.21"
F	0.24"
G	0.125"
H	0.31"
I	0.29"

Overall Web Bearing Area Section Loss

$$1 - \frac{[(0.56"x3")+(0.53"x3")+(0.62"x6")+(0.68"x2.09")]}{11.03in^2} \times 100 = 24\%$$

Overall Shear Web Area Section Loss

$$1 - \frac{[(0.56"x2")+(0.21"x4")+(0x6.5")+(0.125"x1")+(0.31"x4")+(0.29"x4")+(0.783"x9")]}{23.88in^2} \times 100 = 52\%$$

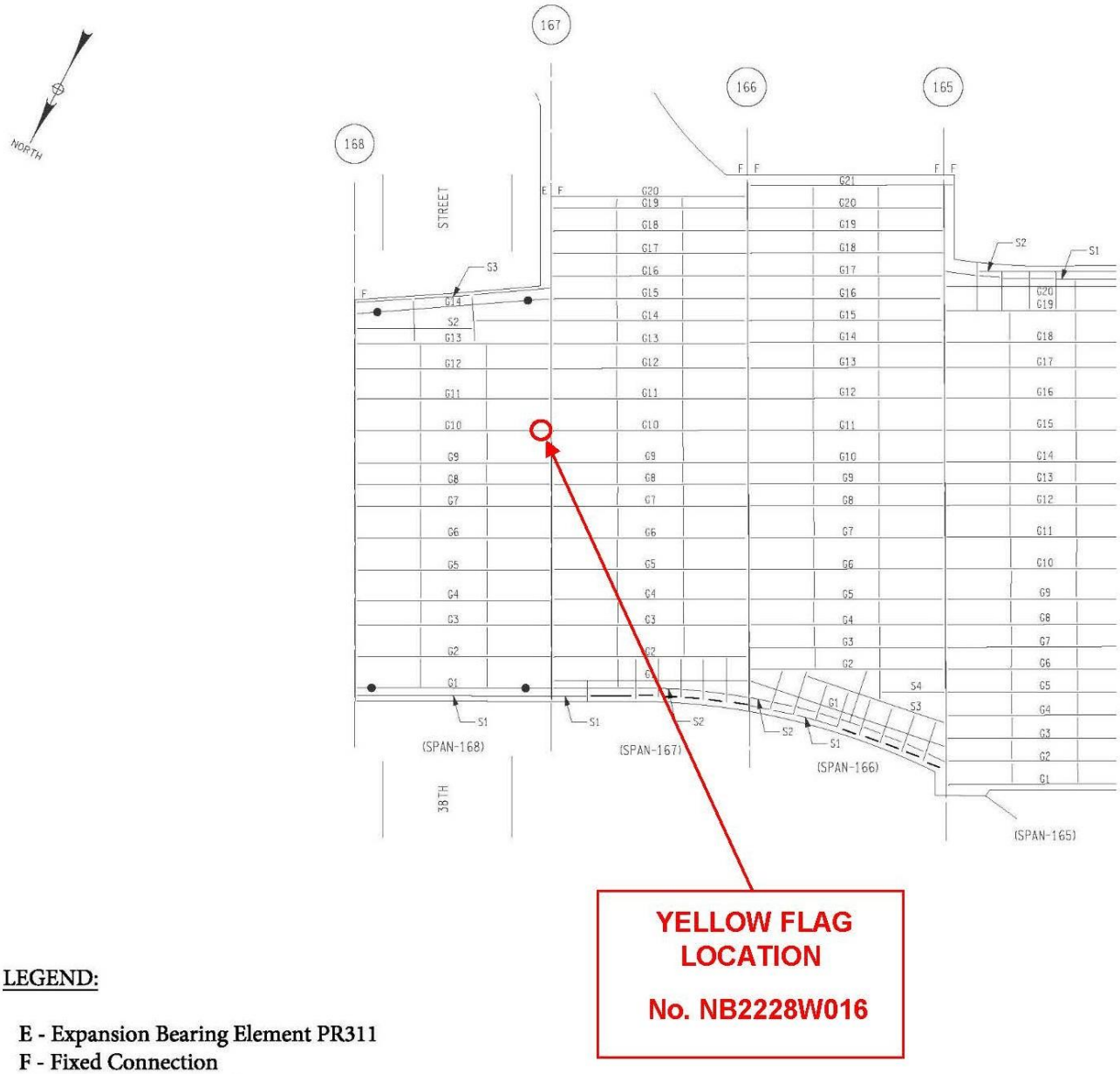
Notes:

-As-built web thickness = 0.783"
-Length of bearing area = 18 x web thickness = 18 x 0.783" = 14.09"
-Overall bearing area = 14.09" x 0.783" = 11.03in^2
-As-built shearing web area = 30.5" x 0.783" = 23.88in^2
-The guide angles at the face of the girder were not shown for clarity purposes.

SPAN 168 G10 at Pier 167
N.T.S.

Attachment Description: **SN168 G10 at Pier 167 Sketch**

Photo Number: **6** Photo Filename: **SN168_G10_Framing Plan - 2022-edit.jpg**



LEGEND:

E - Expansion Bearing Element PR311
F - Fixed Connection
G - Girder Element 107
S - Stringer Element 113
- End of partial length cover plate. Category E' requires 100% Hands on Inspection.

Attachment Description: **SN168 G10 at Pier 167 Framing**